

RESEARCH IN MARINE FISHERIES ECONOMICS IN INDIA – AN OVERVIEW

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Fisheries Economics Research assumes a major role for formulating appropriate policy measures and planning the future development strategies of the fisheries sector. Marine fishery, inspite of its various complexities and intrinsic sectoral conflicts has come to an industrial footing and requires rigorous research on all economic aspects for management of sustainable resource utilization enabling to face new challenges of globalization. Resource management for maintaining sustainable production demands indepth economic analysis of different production techniques to ensure optimum exploitation, equitable distribution, efficient marketing and evolution of alternate management strategies. Marine fisheries in India is accorded priority in the planned development process due to its significant contribution to the economy for generating income in the most backward regions and creating employment to the people who are in the lowest rungs of the social ladder besides providing precious forex earnings and ensuring food and nutrition security.

Fisheries economics is the study of the optimal allocation of resources to a fishery in such a way that the value of production and society's welfare are maximized. Micro- level case studies on costs and earnings of all types of fishing units such as trawlers, purseseiners, gill-netters, ringseiners and other types of motorised and non- motorised traditional fishing units with different types of craft-gear combination have been conducted at major fishing centres to bring out their profitability and techno-economic viability. These studies indicate that almost all types of fishing units, on an average, run on profit as their earnings surpass the break-even point mainly due to favourable price trend. However, due to the nature of competition of open access marine fisheries some of the less efficient units belonging to each category are forced to go out of the sector due to losses. The non-mechanised sector is surviving and sustaining only as a family enterprise.

Disguised as well as structural unemployment are rampant in the traditional sector depending on the inshore fisheries

Marginalisation of indigenous sector and over capitalisation poses a serious problem. The capital investment on fishing equipment's alone at 1999 price level worked out at Rs.4, 120 crores. There is substantial idle capacity of fishing fleets in mechanised, motorised and non-motorised sectors. (50% in mechanised & motorised sector and 80% in Non-mechanised sector), Owing to the seasonality of marine fishery. About 10 lakh fishermen are employed in active fishing. The pre & post harvest sector provides employment for another 12 lakh fisherfolk including 5 lakh women. The increase in operational costs including oil expenditure have been more than compensated by the increase in fish prices. The over dependence of prawn catches for the sustenance of trawlers is slowly being reduced due to increase in price of other varieties of fish in the internal markets.

Input-output relationship studies indicate that the purseseiners which required maximum quantity of fuel for its operation was more fuel efficient as the output for the one rupee spent on fuel was maximum for these units than all other fishing techniques (11.4 kg for purseseiners, 2.1 kg, trawlers and 3.4 kg gill-netters) The near shore trawl operations by sail boats along the Tamil Nadu coast and mini trawls introduced since 1985 along the Kerala and Karnataka coasts were found to catch large quantities of juvenile prawns inflicting heavy economic loss which is not advisable for the long term development of marine fisheries. The multi-species and multi-input nature of marine fisheries led to the under exploitation of the stocks of many low value species of fishes and over-exploitation of certain high value vulnerable stocks. The gross income generated at landing centre level from the marine fish catch of 2.7 million tonnes in 1999-2000 is worked out to Rs. 10,293 crores. Promotion of "cooperative fishing" instead of "competitive fishing" is advisable for optimum exploitation and introducing proper regulations.

India is endowed with 1.2 million hectare of potential area suitable for aquaculture. India produced about 82,910 tonnes of shrimps by culture from an area of 1.07 lakh hectares in 1994-95. The outbreak of disease and environmental problems led to the near collapse of the shrimp oriented aquaculture in India

indicating the importance of economic analysis for optimum utilisation of resources to maximise faster productivity. There is urgent need to bring the entire area suitable for mariculture into effective use not only for culture of shrimps but also for crabs, lobsters, bivalves and fin fish depending on site suitability and economic feasibility. Profitability of mud crab culture, lobster fattening, mussel culture, edible oyster culture and pearl culture have to be studied in different locations for the benefit of end users. Investment avenues in feed industry and hatchery production of seeds should be studied to provide guidelines to prospective entrepreneurs.

The growth of fish production and overall development of fisheries sector depend largely on an efficient marketing system. Studies on fish marketing and price behaviour conducted by CMFRI helped to advance the frontiers of knowledge in fish marketing system in India and to improve its efficiency.

Fishermen's share in consumers rupees at all India level ranges from 30% to 68% for different species/groups of marine fish. Marketing costs including transportation range from 6% to 13% of the consumers rupee. The wholesalers receive 5% to 30% and the retailers from 14% to 47% of the consumers rupee for different species/groups of marine fish. State-wise analysis indicates that fishermen in Gujarat receive 37% (Catfish) to 83% (Ribbon fish) of the consumers rupee, while in Maharashtra it ranges from 36% (sharks and barracudas) to 81% (seerfish) in Kerala ranges from 31% (Lizardfish) to 71% (Cephalopods) in Tamil Nadu it is from 32% (Silverbellies) to 67% (Big jawed jumper) and in Andhra Pradesh it is from 17% (Shark) to 58% (sardines).

The post-harvest sector shown substantial growth in infrastructure development, expansion of internal marketing and boost in export earnings. The extent of spoilage of fish reduced due to wide spread use of ice, technological improvement in processing and transportation facilities. The value of marine fish at consumer level during 1999-2000 is estimated at Rs. 20,000 crores. Export earnings alone increased from Rs. 4.5 crores in 1960-61 to Rs. 6200 crores in 2000-01. About 85% of the catch is channelised to internal consumption and the rest for exports. Hardly 5% of fish in the internal marketing system is marketed by co-operatives and the rest through private marketing channels. Fishermen's share in consumers rupee is high

for the varieties having higher consumer preference. Product development and utilisation of discards, thrust for value added products, support price for commercially important varieties, consumer preference for different species at different regions, identification and cataloguing of pharmaceutically important marine products, utilisation of idle capacity of processing plants for internal marketing, promotion of co-operative marketing and cautious marketing policy of according parallel importance to both domestic and export marketing are some of thrust areas requiring further studies in fish marketing research.

Lack of socio-economic information has been one of the most serious impediments to effective policy making and planning, especially in the case of small-scale fisheries. At present, there are about 2251 fish landing centres and 3638 marine fishing villages in our country. The marine fishermen households located along our coastal belt increased from about 3.5 lakh during 1980 to 5 lakh during 1999. Studies on the socio-economic status of marine fisherfolk have been conducted at selected fishing villages and location-specific suggestions were given for socio-economic improvement of fisherfolk. The socio-economic parameters like housing, literacy, employment, income, investment, expenditure pattern, indebtedness and credit facilities of fishermen households indicated that fishing villages all along the Indian coast are almost similar in their backwardness and underdevelopment. Currently (2001) only 23% of the active fishermen have ownership on fishing equipment.. The annual percapita production per active fishermen declined from 3250 kg in 1980 to 2240 kg in 2001.

Macro-level studies on the costs and earnings of different production techniques, input-output relationship to evolve factor productivity in different production methods impact of introduction of new technologies and practices in capture and culture fisheries, environmental economic aspects of developmental programmes in coastal fisheries and aquaculture, fish marketing research, problems of financing the fishery projects and socio-economic analysis should be accorded top priority and thrust in the future programmes. Research prioritization is required depending on the regional or location specific importance of these issues. The geographical classification of CRZ and adjoining regions indicating the human, material and natural

resource potential is vital for planning. Hence region-wise Geographical Information System of the coastal agro-climatic zone should be prepared on priority basis.

A pre-requisite for planning, coastal zone developmental programmes in the capture fisheries sector is the information base on the potentialities of human resource involvement, the magnitude of facilities such as fishing crafts, gears and other infrastructure available and the extent of current resource exploitation. The comprehensive all India census on marine fishermen, craft and gear was conducted by CMFRI during 1980, which forms the basic data of craft, gear and fishermen population for the country till now. The socio-economic parameters later published by various States either through census or periodic updating bring out a number of discrepancies. Hence, the periodic all India census of marine fishermen, craft, gear and other socio-economic parameters should be conducted regularly by a central agency.